

In the claims:

Please amend the claims as follows:

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- Sub P17
1. (Amended) A metering pump, comprising:  
an actuating mechanism, and  
a plurality of non-rotating piston cylinders arranged radially about the actuating mechanism and coupled to the actuating mechanism, a first of the cylinders having a working volume that differs from a second of the cylinders.
  2. (Original) The metering pump of claim 1 further comprising a piston housed within the first cylinder, and a piston housed within the second cylinder, the piston of the first cylinder having a stroke that differs from the piston of the second cylinder.
  - P1 3. (Original) The metering pump of claim 2 wherein the first cylinder is spaced from the actuating mechanism a distance that differs from a spacing of the second cylinder from the actuating mechanism.
  4. (Original) The metering pump of claim 3 further comprising an adjustment mechanism configured to vary the spacing of the cylinders from the actuating mechanism.
  5. (Original) The metering pump of claim 4 wherein the cylinders are pivotably connected to a housing and the adjustment mechanism comprises a screw and nut.
  - ✓ 6. (Original) The metering pump of claim 1 wherein the first cylinder has a dimension defining an inner volume that differs from a corresponding dimension of the second cylinder.
  - ✓ 7. (Original) The metering pump of claim 6 wherein the dimension is an inner diameter of the cylinder.
  - ✓ 8. (Original) The metering pump of claim 1 comprising at least three cylinders.

Sub 17 9. (Original) The metering pump of claim 8 wherein each cylinder has a working volume that differs from the other cylinders.

10. (Original) The metering pump of claim 1 wherein the actuating mechanism comprises a transition arm coupled to a stationary support and a rotary member.

11. (Original) The metering pump of claim 10 wherein the transition arm is coupled to the stationary support by a U-joint.

A1 12. (Original) The metering pump of claim 10 wherein the transition arm includes a plurality of drive arms and a plurality of joints, each drive arm being coupling to one of the cylinders by a respective joint.

13. (Original) The metering pump of claim 12 wherein the joint provides three degrees of freedom.

14. (Original) The metering pump of claim 13 wherein the joint provides four degrees of freedom.

✓ 15. (Original) The metering pump of claim 1 wherein the actuating mechanism is centrally located.

16. (Amended) A metering pump, comprising:  
a centrally located actuating mechanism including a transition arm coupled to a stationary support and a rotary member, and  
a plurality of piston cylinders arranged radially about the ~~actuating mechanism~~ transition arm and coupled to the ~~actuating mechanism~~ transition arm.

*Sub B7* wherein at least part of the transition arm is centrally located between the piston cylinders and wherein the stationary support is positioned such that an axis of rotation of the rotary member passes through the stationary support.

*107* ✓ 17. (Amended) A method of metering fluids, comprising:  
independently adjusting stroke of one piston of a plurality of pistons to adjust the volume of metered fluid, each piston being housed within a cylinder having a fluid inlet and a metered fluid outlet, and  
selecting different cylinder diameters to adjust the volume of metered fluid.

*A1* ✓ 18. (New) A metering pump, comprising:  
an actuating mechanism, and  
a plurality of piston cylinders arranged radially about the actuating mechanism and coupled to the actuating mechanism, a first of the cylinders having a working volume that differs from a second of the cylinders,  
wherein the cylinders are pivotably connected to a housing and the adjustment mechanism comprises a screw and nut.

✓ 19. (New) A metering pump, comprising:  
an actuating mechanism, and  
a plurality of piston cylinders arranged radially about the actuating mechanism and coupled to the actuating mechanism, a first of the cylinders having a working volume that differs from a second of the cylinders,  
wherein the actuating mechanism comprises a transition arm coupled to a stationary support by a U-joint and to a rotary member.

20. (New) A metering pump, comprising:  
an actuating mechanism, and

Sub 1/ a plurality of piston cylinders arranged radially about the actuating mechanism and coupled to the actuating mechanism, a first of the cylinders having a working volume that differs from a second of the cylinders,

wherein the actuating mechanism comprises a transition arm coupled to a stationary member and a rotary member and wherein the transition arm includes a plurality of drive arms and a plurality of joints, each drive arm being coupled to one of the cylinders by a respective joint.

21. (New) The metering pump of claim 20 wherein the joint provides three degrees of freedom.

A 22. (New) The metering pump of claim 20 wherein the joint provides four degrees of freedom.

23. (New) A metering pump, comprising:  
an actuating mechanism, and  
✓ a plurality of piston cylinders arranged radially about the actuating mechanism and coupled to the actuating mechanism, a first of the cylinders having a working volume that differs from a second of the cylinders,  
wherein at least part of the actuating mechanism is located between the piston cylinders.

24. (New) The metering pump of claim 23 wherein the actuating mechanism comprises a transition arm coupled to a stationary support and a rotary member.

25. (New) The metering pump of claim 24 wherein the transition arm is coupled to the stationary support by a U-joint.

26. (New) The metering pump of claim 23 wherein the actuating mechanism is centrally located.

Sub 27. (New) A metering pump, comprising:  
a centrally located actuating mechanism including a transition arm coupled to a stationary support and a rotary member, and

✓ a plurality of piston cylinders arranged radially about the actuating mechanism and coupled to the actuating mechanism,

wherein in at least one operating configuration the axis of rotation of the rotary member and the longitudinal axis of at least one piston are parallel.

28. (New) A metering pump, comprising:

an actuating mechanism, and

A — a plurality of piston cylinders arranged radially about the actuating mechanism and coupled to the actuating mechanism, a first of the cylinders having a working volume that differs from a second of the cylinders,

wherein the actuating mechanism comprises a transition arm coupled to a stationary support by a U-joint.

29. (New) A metering pump, comprising:

an actuating mechanism, and

A — a plurality of fluid-pumping piston cylinders arranged radially about the actuating mechanism and coupled to the actuating mechanism, a first of the cylinders having a working volume that differs from a second of the cylinders,

wherein the first cylinder is spaced from the actuating mechanism a distance that differs from a spacing of the second cylinder from the actuating mechanism.

✓ 30. (New) A metering pump, comprising:

an actuating mechanism,

a plurality of piston cylinders arranged radially about the actuating mechanism and coupled to the actuating mechanism, a first of the cylinders having a working volume that differs from a second of the cylinders, and

Sub 17 an adjustment mechanism configured to independently vary the spacing of one piston cylinder of the plurality of piston cylinders from the actuating mechanism to independently adjust the stroke of a piston in the one piston cylinder.

31. (New) A metering pump, comprising:

137 ✓ an actuating mechanism, and  
a plurality of piston cylinders arranged radially about the actuating mechanism and coupled to the actuating mechanism, wherein each cylinder of the plurality of cylinders has a working volume that differs from the other cylinders.

A 32. (New) A method of mixing fluids, comprising:

selecting different cylinder diameters to coarsely adjust a mix percentage of a plurality of fluids in a mixture, each cylinder housing a piston that pumps one of the plurality of fluids into the mixture; and

adjusting the stroke of each piston in each cylinder to finely adjust the mix percentage of the plurality of fluids in the mixture.

33. (New) A pump for mixing fluids, comprising:

137 ✓ an actuating mechanism;  
a plurality of piston cylinders arranged radially about the actuating mechanism and coupled to the actuating mechanism, each cylinder housing a piston that pumps one of a plurality of fluids into a mixture and each cylinder having a working volume chosen to coarsely adjust a mix percentage of each fluid in the mixture; and

an adjustment mechanism configured to adjust the stroke of each piston in each cylinder to finely adjust the mix percentage of each fluid in the mixture.

137 34. (New) The method of claim 17 wherein independently adjusting stroke of one piston includes independently adjusting stroke of each piston of the plurality of pistons.